

## The MINES of ARIZONA

This department is under the direction of Mr. W. E. Defty, who will carefully scrutinize all matters relating to mining in order that only reliable information regarding legitimate enterprises shall find a place here.

The Republican would be pleased to receive information from any part of the state regarding the development of the mining industry. All communications should be addressed: Mining Department, Arizona Republican.

### COPPER AND ZINC RIVAL

**BONANZA DAYS IN GOLD**

Two prominent mining securities reached record high prices to date, which prices are 50 to over 100 times the price at which the same securities could have been bought in recent years.

Butte & Superior Copper Co., Ltd., reached \$100 a share on the New York and Boston Exchanges. Five years ago the stock was neglected at \$2 a share with few takers. The Butte & Superior is referred to as the "world's greatest" zinc mine. It is located at Butte, Montana.

It has been called the world's "most successful failure" and thereby hangs a tale. W. A. Clark, ex-United States Senator from Montana shut down his old "Black Rock" silver mine at Butte, in 1908, when the bottom dropped out of the silver market. About ten years later, Capt. A. B. Wolcott of Butte, a retired Great Lakes navigator, took the Black Rock mine and developed it at depth, in the hope that it would turn into a copper mine. All the other big Butte copper mines were workings, and the wide Black Rock vein similarly silver mines in the upper suggested to Captain Wolcott that if it were turned into a copper mine at depth it would be a "whale." He reorganized it the Butte & Superior Copper Company, Ltd.

Instead of copper, the mine developed enormous zinc ore bodies but at a time when the demand for zinc was not great. Moreover, the zinc ore required special treatment. Captain Wolcott was more familiar with navigation than with the intricacies of zinc metallurgy. He lacked financial means to fully develop the mine and erect a suitable treatment works. So he sold out to banking interests in New York and Boston.

At yesterday's market price of \$100 for the stock, the Butte & Superior mine is worth \$25,000,000. The company earned \$1,350,000 net profits in the single month of February.

More remarkable in some ways than the 30-fold advance in Butte & Superior stock, was the advance in United Verde Extension Copper Co.'s shares to \$15.18 in Boston and New York yesterday. Three years ago the shares were ignored at 15 cents and could be bought at 40 cents two years ago.

This property adjoins the United Verde copper mine at Jerome, Arizona, which has paid \$26,000,000 dividends. The original United Verde is also owned by ex-Senator Clark. For many years United Verde Extension was considered a "wild-cat" whose principal asset was its proximity alongside its famous namesake, the United Verde.

The interests who owned the Verde Extension had the financial means and engineering skill to adequately develop their property. About a year ago, a young mining engineer took an option on the property. This man was James Douglas, Jr., connected with the Phelps Dodge interests, and son of the older James Douglas, a noted figure in the past 40 years' history of the American copper industry. Young Douglas opened up some very large bodies of exceedingly rich copper ore by only a few months' work, and the United Verde Extension now bills fair to rival its

famous neighbor and namesake—New York Commercial.

### ANOTHER ARIZONA MINE

There seems to be no question but that another producing copper mine will be opened on the big copper belt extending from Christmas to Ray. The Pinal Development company, who are energetically developing the Renfro property, four miles east of Ray Consolidated Copper mines, report that a new strike of rich ore has been made on heretofore unexplored ground. The general conditions suggest excellent possibilities.

### CLIP MINE

This old property north of Yuma on the Colorado river is again receiving some attention in hopes of its being again put on the lists of producers. Forty years ago the property was a steady producer. The ore extracted from the mine were treated at a mill on the river and later the tailings were treated by the cyanide process. It is interesting to see how the old time mines all over the state are coming to the front again.

### DENN ARIZONA

Operations at the Denn mine, Bisbee, Arizona, are about to be resumed. This was determined upon at a meeting of the company in Chicago early last week. All that remains to be determined is the method of procedure.

This company's property consists of 200 acres, which tract is traversed by the dividend fault for a distance of 4000 feet. The Denn lies immediately east of the Junction shaft of the C. & A. The Denn shaft is down 1600 feet and development work was discontinued in 1912 on account of the large amount of water to be pumped. The subsequent development of neighboring properties makes it possible to establish a basis of dividing the pumping costs.

The 1000 and 1100 levels of Denn show much leached ore, with occasional bodies of rich copper. Large bodies of leached ore were developed on the 1200 and 1300 levels, and on the latter some native copper, and other deposits of ore ranging from 12 to 15 per cent copper. The average tenor of ore disclosed has been estimated at 8 per cent. The Denn looks rich. The mine has been idle since 1912, when the water flow became too heavy for continued operations.

In 1909 Denn produced about 100,000 pounds of fine copper and 41 ounces of gold. The Denn has an excellent chance of making a big mine, and the developments in Junction ground the past few years have emphasized that belief.

### THE MINER IN THE TRENCHES

It must be a novel and extraordinary experience to carry on underground warfare, says the Cornish Post and Mining News. The mining engineer who is engaged in destructive mining at the foot of some of the largest bodies of human moles, who dig as silently as possible until their galleries are underneath the trenches of the enemy.

All the time they know that a similar body of miners is working toward their own trenches and emplacements. Sometimes each can hear the sound of the other's tools or one lot can tell that the other is dragging a heavy load through the hidden galleries.

It requires the highest kind of sustained courage to remain at a listening post in a narrow tunnel day and night, knowing that your enemy is gradually getting nearer, and that you may be blown up. Military mining calls for the finest types of tunneling men and for leadership of a high order. Science, initiative, endurance and sustained courage are called for and when the story of the tunneling corps in Belgium, France and Gallipoli can be told, the public will be amazed at the ingenuity, the fortitude and the efficiency of the soldiers, tin miners and their intrepid leaders.

### CALUMET & ARIZONA

The Calumet & Arizona Mining Co. has made plans for the expenditure of a million and a half in new construction work the present year. This work entails the building of new plants and additions to plants in and about Douglas, Arizona. The work will be undertaken as soon as possible and will be rushed.

A sulphuric acid plant, with capacity of 100 tons, the product of which will be 60 per cent sulphuric acid, will go. The purpose of erecting this plant is to recover the sulphuric acid from the smelter fumes and will mean the saving of many thousands of dollars each year to the Calumet & Arizona. The plant is to be built in the vicinity of the smelter at Douglas. The acid recovered will be sold to the New Cornelia Copper Co., which will use sulphuric acid in considerable quantities as soon as mining operations are gotten well under way.

On account of the erection of the acid plant it will also be necessary to build a large addition to the power plant at the smelter and it is likely that another reverberatory furnace will also be added. There are four of these furnaces at the present time. The fifth furnace will be constructed expressly for the treatment of low-grade ores. Calumet & Arizona has a very large tonnage of low-grade ores which cannot be profitably treated with copper at 12 cents or below but on which a considerable profit can be made with the metal market as it is a present. The company has not capacity required for treating these ores now, however.

The installation of an electric pump at the Junction shaft is also contemplated. This pump will receive its power from the Douglas smelter's power plant.

### MIAMI

Miami in the short February month produced 3,399,336 pounds of refined copper, net, exceeding the January output of 3,010,000 pounds. Production was at the rate of slightly over 50,000 pounds per annum. Costs are around \$5.00 per pound, with miners' wages close to the \$5 per day mark. Miami's present normal production rate is 55,000,000 pounds of copper per annum. Storms in late January and early February curtailed shipments somewhat. On 15-cent copper Miami could produce at well under \$6 per pound, as the union wage scale with copper met-

al at that price calls for \$3.75 per diem for miners, etc. Prevailing wages with copper above 25¢ per pound are 33-1-3 per cent higher. On 25-cent copper, Miami is earning on actual production and present costs about \$11.54 per share per annum. On 15-cent copper it can earn on normal production and normal costs \$5.15 per share per annum.

### INSPIRATION

The production of this company for February amounted to 8,300,000 pounds.

### OLD DOMINION

The output of this company for February was 3,320,000 pounds of copper. This compares with 3,121,000 in January and 2,495,000 pounds in December.

### PRICE OF COPPER

The official average price of copper in February according to the "Engineering and Mining Journal" was 26.44¢ cents comparing with 24.98¢ cents in January.

### GREENE-CANANEA

Greene-Canaan in the short February month broke all its production records in recent years with an output of 4,242,000 pounds of blister copper from the company's own mines, and \$28,000 pounds produced from purchased ores or 5,180,000 pounds in all. This indicates a production rate of over 52,000 pounds per annum from company ore and a smelting capacity exceeding 63,000,000 pounds. All eight furnaces at Cananea are in blast, together with two reverberatories. Only one section of the newly remodeled concentrator is in operation. The other section is in process of equipment with the oil flotation cells and additents which have demonstrated their success in the present operating season.

Normal costs at Cananea are now around 6¢ or slightly under, but conditions are not yet normal. Production was resumed only in December, and neither the personnel nor plans are yet attuned to the best degree of efficiency. It is believed that costs at the present time do not exceed 10¢ per pound on Cananea's own production and that it will not be long before a 5-cent cost is realized and possibly a cent near 5 cents after the entire mill is in operation. Actual profits in January and February on actual company production in these months are estimated at \$1,200,000 assuming a 10-cent cost and adding the profits on purchased ore and the profits on the Miami smelting contract which is now sublet to the Anaconda smelter at Miami, Ariz. Total profits in January and February exceed \$1,500,000 for the two months over \$2 per share, or at the rate of nearly \$19 per share per annum.

### PHELPS-DODGE

This company has declared the regular quarterly dividend of \$2.50 per share and an extra dividend of \$3.50 per share.

### OATMAN

The Oatman Syndicate is rapidly pushing a 2-compartment shaft down to about the 500-foot level. The bottom has passed the 100-foot mark and is progressing 6 feet per day. J. Parke Channing and his associates, personally hold the controlling interest in this project which is on the Black Range or south-easternmost of the major local systems at the Oatman, Arizona, gold camp. The General Development Co., as such, has no interest in the property.

### ARIZONA STATE BUREAU OF MINES

There is a great necessity for men engaged in the mining industry to be more familiar with political affairs, especially conditions in Washington and their state capitals, is the statement recently made in a bulletin of the Arizona State Bureau of Mines. That this has not been the case is in no small degree responsible for the unfair distribution of government funds regarding mining and agriculture.

Agriculture and mining are the two back bone industries of the country, and both deserve fostering by the federal and state governments. More money could profitably be spent in the agricultural development of the country and more undoubtedly will be spent; it is quite probable that in a few years the size of agricultural appropriations will have doubled their present size.

The same is true of mining. The mines in the country as a whole produce almost as much new wealth as agriculture, and in many states, such as Arizona, the mines produce annually as much as the total value of all farm land, improvements and products. If, therefore, mining should receive more aid from the government than is given to agriculture, as it is more scientific, and results are obtained only after long and expensive experimentation. Moreover, that which is taken from mines is removed forever, and there is no opportunity of correcting mistakes, whereas on a farm a mistake in one year's crop may be corrected in the next.

Mining is not receiving its fair proportion of government and state appropriations, and it is largely the fault of those in the mining industry, for they have not given the coordinate action of the persistent type which the farmers have. Cooperation and organization will be the means by which the miner will receive his share of attention.

At the outbreak of the European war the American tungsten market was very dull and prices very low, about \$6.00 to \$6.50 per unit. The ore mined in Burma, Australia and other countries came into competition with the American ores and the result was that there were many undeveloped and unworked properties.

The most common use for tungsten is for high speed steels, and the demand increases or decreases with the steel market. It is also used to a slight extent for incandescent electric filaments, electric contact wire, and for dental work. When the orders for shrapnel shell and other war munitions came, the demand for high speed steels rapidly increased. The embargo placed by Great Britain on tungsten ores cut off Burma and Australian supplies. Following this the price rose rapidly, until \$60 and more per unit has been paid for ores containing 60 per cent and over of tungstic trioxide. The small quantity of ore that has come from Japan, Peru and Bolivia, have not been large enough to disturb the market.

As with antimony, the users of tungsten have been scouring the country

## CHURCH NOTES

### St. Mary's

St. Mary's (Roman Catholic), East Monroe street, between Third and Fourth streets. Time of services: Low mass 7 a. m. Low mass and sermon 8:30 a. m. High mass 10:15 a. m. Vespers and benediction 7:30 p. m. Father Nocatus, priest in charge.

### Christian Science

First Church of Christ, Scientist, Arizona School of Music, North Central avenue. Sunday service at 11 a. m. Subject of the lesson sermon: "Matter." Golden Text: Isaiah 51:6, "The heavens shall vanish away like smoke, and the earth shall wax old like a garment, and they that dwell therein shall die in like manner, but my salvation shall not be abolished. Sunday school at 9:45. The Wednesday evening testimonial and experience meeting is at 8 o'clock. The reading rooms maintained by this church are located in the Noll Building on First avenue, Rooms 221 and 223, and are open daily, except on Sunday, from 11 a. m. to 4 p. m. and on Tuesday and Friday evening from 7 to 9. At these rooms a welcome is extended to the public, and the Bible and authorized literature concerning Christian Science may here be read, borrowed or purchased if desired. All are cordially invited to attend church services.

### First Christian Church

Corner Fifth avenue and Monroe street. Claude C. Jones, pastor. Sunday school at 9:45 a. m. D. K. Fretz, superintendent. Preaching at 11 a. m. by the pastor. Sermon to junior congregation followed by regular sermon. Subject: "The Lordliness of Jesus." Christian Endeavor at 6:30 p. m. Preaching at 7:30 p. m. by the pastor. Subject: "Silence; then a Song." Worker's conference Monday at 7:30 p. m. Prayer meeting Wednesday at 7:30 p. m. Choir practice Friday at 7:30 p. m. Open house Tuesday afternoon from 2 to 5 o'clock.

The Christian church will have revival services commencing Sunday morning, April 2. Evangelist James A. Barnett of Mobile, Ill., has been engaged for this purpose. It is planned to continue these meetings until Easter Sunday.

### First Presbyterian Church

Sunday school, 9:30 a. m. Morning worship, 11 o'clock; sermon by the Rev. John S. Bayne, D. D., from the First Presbyterian church of Hutchinson, Kansas. Junior Endeavor meeting, 2 p. m. Indian service, 4 p. m. Senior and Intermediate Endeavor meetings, 6:30 p. m. Evening worship, 7:30 p. m. Sermon by the Rev. Mr. Bayne. All are cordially invited to attend these services. Church at the corner of Third avenue and Adams street.

### First Methodist Episcopal Church

Ray C. Barker, D. D., minister. Sunday school at 9:45, J. O. Sexton, superintendent. Public worship at 11 a. m. and 7:30 p. m. The pastor will preach morning and evening. Morning subject: "Without faith it is impossible to please God." Evangelistic service in the evening. The chorus choir will sing. Subject of the sermon: "The Divine Demand Concerning Sin." Epworth League meeting at 6:30. Church is at the corner of Second avenue and Monroe street.

### Trinity Pro-Cathedral

William Scarlett, dean. The Cathedral House is situated at the head of First avenue on Roosevelt street. All are cordially welcome. Services on Sunday, March 19: Sunday school at 9:45; Bible classes at 10; vesper service at 4:30 p. m.; the Cathedral Club at 6 p. m.; morning service at 11. At the morning service Dean Scarlett will preach on the subject, "The Adventure of Life." The following musical program will be rendered by the choir under the direction of William Conrad Clark: Organ Prelude, "Andante... Lemmons." Benediction, "Andante... Lemmons." Venetian, "Andante... Lemmons." Anthem, "How Lovely Are the Messengers" (from St. Paul). Organ Postlude, "Gladstone."

### The Missionary Church

Meetings at the Gospel Tabernacle, corner of Tenth and Jefferson streets, as follows: Sunday school at 9:45 and preaching at 11 o'clock a. m. Young People's meeting at 7 and evangelistic meeting at 8 o'clock p. m. Rev. Armstutz, who has returned from the coast, will take charge of the work again. He will preach on the subject, "Moses Smiting the Rock." In the morning, Rev. H. H. Armstutz, pastor.

### Church of Jesus Christ of L. D. S.

Sunday school at 10:30 a. m. Evening service at 7 o'clock. Elder M. A. Stewart will speak on the subject "The purpose of Water Baptism and how we teach it to our children." Cordial welcome to all. No collections; 121 South Second avenue.

### Creighton M. E. Church

Three miles east on the McDowell

for these ores, and trying to purchase tungsten mines, and although the price for ores is largely a matter of individual bargaining the prospector has fared well.

The situation is not at all natural and is already dependent upon the duration of the war. Although it is likely that the steel business will remain active, it is not at all likely that it will remain in its present state of prosperity. Then the demand for tungsten will be lessened, and with this will come the inability on the part of the individual operator to sell his practically all of the users of tungsten will have acquired working mines of their own in order to supply their individual needs. Those interested in the Tungsten situation will find bulletin No. 11, entitled "Tungsten" by A. C. Rabel of considerable interest. This may be obtained by addressing Charles E. Willis, Director, Arizona State Bureau of Mines, Tucson, Arizona.

road. The revival meetings, running since March 5, have been a great blessing for the church and the community. There have been between 58 and 75 conversions. The series of meetings will close Sunday night. You are cordially invited to attend all our services. Sunday school at 10 a. m., Wm. Osborne, superintendent. Preaching at 11 a. m. and 8 p. m. Epworth League 7:30 p. m. H. A. Severinghaus, pastor.

### Grace Episcopal Lutheran Church

South Second avenue, between Washington and Jefferson streets. Bible school at 9:45 a. m. E. New-comer, superintendent. Morning worship at 11 o'clock. Sermon by the pastor to the children. Special music by the choir, J. F. Westberg, chorister. Mrs. Chester Dana Reed, violin accompanist. Evening service at 7:30. Sermon by the pastor, "The Great Power of Prayer." Everybody welcome. Joseph Ernst, pastor.

### First Pentecostal Mission

Sunday school at 10 o'clock in charge of Superintendent Edward Habecker. Splendid interest and progress in each class, and others are urged to become regular attendants with us. The special services begin on Friday night will continue every night through the week at 7:30, in charge of Evangelist Homer L. Faulkner, who, with his sister, have arrived from Tulsa, Texas. Rev. Faulkner is too well known in these parts to need any special recommendation, having been with us during the wonderful outpouring of the spirit a year ago, and his evangelistic labors during the past year have been particularly owned and blessed of God. Following the Sabbath school there will be preaching at 11 o'clock, and in the afternoon there will be the communion service with wine and unleavened bread, as practiced by the early apostolic church, and immediately following there will be administered the rite of Christian baptism to all those desiring this public identification with Christ in His death, burial and resurrection. "For if we have been planted together in the likeness of His death we shall also be in the likeness of His resurrection." Romans, 6:5.

During the week there will be services in the afternoon at 2:30 on Wednesday, Thursday and Friday. We invite the cooperation of all interested in the salvation of souls, and the upbuilding of the cause of Christ. Our church is located three blocks south of Washington street on Seventh avenue. All are welcome. R. L. Gomez, pastor.

### Mental Science

Lecture by Dr. George W. Stevenson on "Higher Psychology," at College Hall, directly north of Adams school, at 8 o'clock p. m.

### Zion Evangelical Lutheran Church

Services held in the W. C. T. U. Building, 227 West Monroe street. Bible class and Sunday school at 9:45 a. m. H. J. Fast, superintendent. Morning service at 10:15, subject of sermon, "Christ Our Mediator." Evening service at 7:30. Subject, "The Fountain of Grace." All are welcome. Immanuel P. Frez, pastor, 742 West Filmore street.

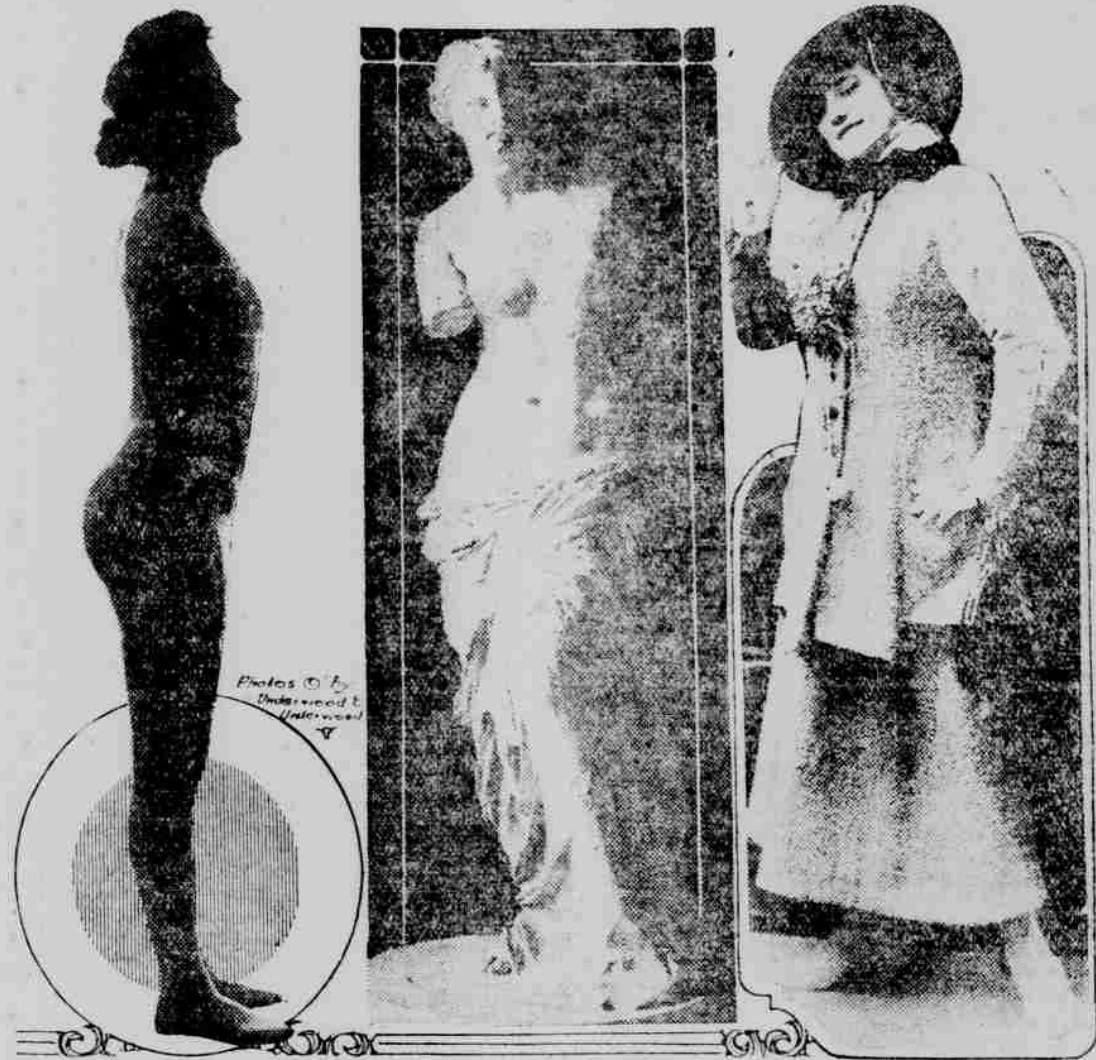
### Church of God

Corner of Ninth avenue and Madison street. Sunday school at 9:45 a. m. Preaching services at 11 a. m. and 8 p. m. Prayer meeting Wednesday evening. All are cordially invited to these meetings. W. H. Knight, pastor.

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## Use "The Want Ad Way"

## BOXER KILLED BY BLOW ON THROAT

Andrew Crowley Dies Almost Instantly in Receipt of Stinging Blow on Larynx.

[Republican A. P. Leased Wire] PHILADELPHIA, March 18.—Andrew Crowley, a featherweight professional boxer of this city, was almost instantly killed, at a bout with Mike Malone, also of Philadelphia.

Death, according to the police, was caused by a blow on the larynx in the third round. Up to this point the bout had been an even contest. Then Malone staggered Crowley with a right to the jaw and followed it with a slinging blow to the throat. Crowley

### BEAVERS GOT NICE

[Republican A. P. Leased Wire]

SACRAMENTO, Cal., March 18.—The Portland Coast League baseball team defeated the St. Mary's College nine here six to three, in the first game of the training season. Smith, an Indian recruit, hurled shutout ball for the Beavers during the five innings he was on the mound.

Score:—

Portland..... 6 8 5  
St. Mary's..... 3 0 0  
Batteries—Clark, Smith and Harkness; Crow, Smith and Baker.